



IMPROVING MATH ENGLISH LEARNING OUTCOMES THROUGH AUDIOVISUAL MEDIA FOR STUDENTS AT PHATNAWITYA SCHOOL THAILAND

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ABSTRACT

This Community Service Program aims to improve students' learning outcomes in Math English by utilizing audiovisual media at Phatnawitya School in Thailand. The methods used in this program include mentoring/tutoring, socialization, lectures, pre-test, and post-test. The use of audiovisual media in Math English is intended to enhance listening, writing, and speaking skills in English, as well as to improve rapid calculation abilities. Based on results of the community service program at Phatnawitya School Thailand conducted by student from the Faculty of Teacher Training and Education at Universitas Muhammadiyah Buton, an analysis involving 19 students showed a significant improvement in average learning scores, rising from 61.31 on the pre-test to 83.15 on the post-test, the program has had a positive effect, leading to improvements in English literacy and numerical literacy through and use of audiovisual media.

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Introduction

In the ongoing effort to enhance educational quality, many primary schools face the challenge of improving students learning outcomes, particularly in Math English subjects. One of the partner schools, Phatnawitya School in Thailand, is struggling to ensure that students grasp mathematical concepts effectively in English, which may hinder their academic progress. This issue arises from the limitations of conventional teaching methods that are less effective in explaining mathematics concepts in an unfamiliar language. To address this problem, the use of audiovisual media can be an effective solution. Audiovisual media, such as interactive learning videos and animations, can present mathematical concepts in a more engaging and comprehensible manner while providing clearer context in English. Thus, students at Phatnawitya School are expected to better understand and apply mathematical material, leading to a significant improvement in their learning outcomes.

One of the goals of teaching mathematics in primary school is to provide students with a solid foundation to tackle mathematical material at higher levels of education (Siregar, 2023). Mathematics is often perceived as a complex and challenging subject, leading to a significant gap in students' foundational knowledge. Consequently,

this lack of understanding can result in frustration and a lack of motivation, particularly when it comes to accurately analyzing and solving problems. Additionally, the use of English in math exam questions further exacerbates students' difficulties, making the subject even more challenging for them. (Setyowati, 2019)

Learning outcomes is the achievement attained by students after receiving instruction over a specific period. They can also be viewed as a reflection of the students' learning efforts. Ideally, the greater the effort student puts into their studies, the better the learning outcomes they will achieve. Therefore, learning outcomes can serve as a key measure of the success of the educational process experienced by students (Yandi, Nathania Kani Putri, & Syaza Kani Putri, 2023). Learning outcomes, as a measure of assessment in the learning process, are expressed through symbols, letters, or statements that describe the results achieved by students over a specific period. Therefore, student should ideally achieve learning outcomes that describe the results achieved by students over a specific period. Therefore, students should ideally achieve learning outcomes that meet established standards; however, in reality, not all students reach optimal results. This can be due to various factors, one of which is the suboptimal use of educational media. (Mahyuni, Sutrisno AB, & Rara Kirana, 2022)

Learning media are an integral component of the educational system, and their use significantly impacts

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student learning outcomes. The effectiveness of teaching hinges on the teacher's ability to design and implement engaging and effective learning experiences (Sihombing, Halena, & Sofiyah, 2024). Audiovisual media are widely recognized for their ability to engage primary school student more effectively, thanks to their inherently engaging and easily adaptable nature. These media formats, based on video applications, can be readily updated to reflect changes in the curriculum and enhance comprehension. Additionally, they simplify the process for teachers by aiding in material presentation and classroom management, such as visualizing the content being taught. (Heronika, 2022)

Based on previous research, the use of audiovisual media has been shown to improve student learning outcomes in mathematics, specifically in topics such as currency value equivalent and price sorting for second-grade students at UPTD SD Negeri 2 Wirapanjuan during the 2022/2023 academic year. Results from Cycle I reflect this improvement, with 13 students (54.2%) reaching the Minimum Competency Criteria (KKM) score of 65. In Cycle II, this number increased to 21 students (87.5%), while three students (12.5%) did not meet the KKM, resulting in an average class score of 86.74. (Heronika, 2022)

The purpose of the community service program is to bridge the gap between academic knowledge and practical application by addressing real-world challenges in local communities. The purpose of the article is to explore and document the effectiveness of audiovisual media in enhancing students' understanding and performance in Math English subject. This research aims to provide evidence-based strategies that can be implemented to address language barriers and improve educational outcomes. The contributions of this article extend to the advancement of educational methodologies by demonstrating how innovative media can support language learning and subject comprehension. Furthermore, it aligns with the Sustainable Development Goals (SDGs) by promoting quality educational and equitable learning opportunities, thus supporting the broader objective of fostering inclusive and sustainable education systems.

Methods

The theme of the program being implemented relates to improving Math English learning outcomes. The implementation of the international community services program begins on August 07th - 27th 2024 in Thailand and is in accordance with the placement of each school. The period for implementing international community services program is 20 days. Participants in this International community services activity are 19 students from class 6/2 of the Phatnawitya School, consisting of 14 boys and 5 girls. To address the issues faced by the partners, activities have been carried out to utilize audiovisual media to improve Math English learning outcomes among students at Phatnawitya School.

The methods employed in this service project include: tutoring/mentoring, socialization, and lectures, by providing English-language math instructional videos to the students. In addition to these methods, pre-test and post-test are used to assess the initial and final abilities, as well as the improvement in Math English learning outcomes among students at Phatnawitya School. The instruments used in this study include: pre-test and post-test questions and observation notes. To obtain data on the variables being studied, this research collected data using a test technique with questions. The questions were used to measure the students' math English learning outcomes before and after instruction using audiovisual media. The data obtained from the pre-test and post-test were analyzed using descriptive statistics to measure the average scores before and after the intervention. Observations were recorded and analyzed to provide insights into classroom dynamics and the effectiveness of the media.

Results and Discussions

Based on the results and discussion, the program was implemented quite smoothly, thanks to thorough preparation and planned execution. The use of audiovisual media effectively captured the students' attention and enhanced their engagement in math English lessons. Students displayed high enthusiasm during the video viewing and discussion sessions, which was reflected in the improvement of their scores on the final tests. The Thai subtitles played a crucial role in enhancing students' understanding. By providing direct translations of mathematical vocabulary, the subtitles allowed students to more quickly grasp new terms and comprehend the material presented in English.



Fig. 1. The use of audiovisual media with students at Phatnawitya School



Fig. 2. Students' reactions to the use of audiovisual media



Fig. 3. Students are working on the given test

The study indicates that the use of audiovisual media in Math English instruction at Phatnawitya School led to significant improvement in student learning outcomes. Among the 19 students involved, the average pre-test score was 61.31, while the average post-test score increased to 83.15. This increase is supported by a mean difference of -21.842, indicating that the average post-test score was significantly higher than the pre-test score. This suggests that audiovisual media positively contributes to students' understanding of mathematical concepts in English.

Table 1. Average Between Pre-Test and Post-Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	61,31	19	8,138	1,866
	Post-Test	83,15	19	6,282	1,441

Table 2. P-Value of Paired Sample Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PreTest	-21,842	5,580	1,280	19,152	24,531	-17,061	18	<,001
	Post-Test								

The calculated t-value of -17.061 and a p value of less than 0.001 indicate that the improvement in scores is statistically significant. This result strongly suggests that the use of audiovisual media had a positive effect on the students' learning outcomes in Math English. The negative t-value confirms that the post-test scores were higher than the pre-test scores, and the very low p-value reinforces that this improvement is highly unlikely to have occurred by chance. The standard deviation of pre-test and post-test scores were 8.138 and 6.282, respectively. The decrease in variability (standard deviation) from pre-test to post-test indicates that the scores became more consistent after the intervention.

Feedback from students indicated that they found that it easier to understand mathematical concepts and expand their vocabulary when explained through videos. Students reported that the use of audiovisual media learning more enjoyable and helped them grasp challenging material. Observations during the learning sessions showed that student engagement in the learning process increased. Audiovisual media, such as English-language math instructional videos, successfully captured students'

attention and made them more active in class discussions. Most students also reported an increase in motivation and interest in learning Math English after using audiovisual media.

Audiovisual media can improve student achievement if used effectively. Audiovisual media plays a role in increasing students' interest and motivation towards mathematics. This is because the appearance of audiovisual media is interesting, varied, and interactive. Understanding mathematical concepts, principles, and formulas will also be easy for students to understand. Audiovisual media can be used in various types such as film, video, television, sound slides. Inappropriate use of audiovisual media will result in many problems. Starting from the confusion that occurs in understanding mathematics material. Errors that will often occur, ranging from the use of the wrong media, inappropriate material, to problem solving methods that are difficult to understand. (Sappaile, Yusuf, Mardiati, Zoraida, & Sitepu, 2024)

Previous research conducted by students from the faculty of Teacher Training and Education at HKBP Nommensen University Medan at SMA Tri Sakti Lubuk Pakam concluded that the community service activities had a positive effect, namely an improvement in English language and literature literacy as well as numerical literacy. This improvement was attributed to the application of audiovisual media, as evidenced by post-test results and visual observations. (Siahaan et al., 2023)

Based on previous research conducted on Mathematics in the fourth grade at SDN Abadijaya 3, Sukmajaya District, Depok, it has been shown that using audiovisual media can enhance the effectiveness of learning in Mathematics, particularly in the area of fractions. The study revealed a significant improvement in both cognitive development and student attitudes towards Mathematics learning with the use of audiovisual media. In Cycle I, the average improvement in Mathematics learning outcomes was 5.21%. This average increased to 7.51% in Cycle II, indicating a 2.38% improvement. Therefore, it can be concluded that the effectiveness of Mathematics learning, when using audiovisual media, significantly improved the learning outcomes related to fractions in the fourth grade at SDN Abadijaya 3, Sukmajaya District, Depok. (Suhartini, 2020)

The challenges encountered during the program included language barriers that led to limitations in communication while the program was running. Despite this, the program proceeded effectively and smoothly. These findings have implications for teaching practice. The use of audiovisual media can be an effective strategy for improving learning outcomes in primary schools. This study has several limitations, including a small sample size (19 students) and constraints on generalizing the results. Future research with a larger sample and across various school settings will help to confirm these findings.

Conclusions

This service activity program, demonstrates that the use of audiovisual media significantly improves learning outcomes for students at Phatnawitya School, Thailand. Analysis of 19 students revealed that the average learning score increased from 61.31 on the pre-test to 83.15 on the post-test, with a statistically significant improvement (t -value of -17.061 and p -value of less than 0.001). These findings confirm the effectiveness of audiovisual media as a valuable educational tool within the community service context. Implementing this method in the International Community Service program can facilitate better learning and positively contribute to enhancing educational quality in local communities. Although the study shows promising results, the small sample size indicates the need for further research with larger samples to reinforce the findings and explore the application of audiovisual media in various educational contexts.

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